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Microcomputers, P/G%, and Dispute Resolution

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I. INTRODUCTION

The area of dispute resolution has historically relied on the human element of negotiation and mediation. Through the recent developments in the computer field a program has been developed to aid in dispute resolution.[1] This program, Policy/Goal Percentaging (hereinafter P/G%) allows disputants to see the results of alternative proposals based on the criteria of their respective positions. This program facilitates maximizing compromises even above the expected ideal positions.

The program is called Policy/Goal Percentaging because it relates alternatives (policies) to criteria (goals) using either part or whole percentaging (percent determining) to measure outcomes where the goals are of different dimensions. The program is designed to process a set of (1) goals to be achieved, (2) alternatives for achieving them, and (3) relations between goals and alternatives. This will allow disputants to choose the best alternative or combination of alternatives for maximizing benefits minus the costs to the disputants or others. P/G% is a form of expert systems software which seeks to include the logic which successful decision-makers and mediators possess.[2] Additionally, P/G%

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1. For details concerning Policy/Goal Percentaging, *see also* S. NAGEL, MICROCOMPUTERS AS DECISION-MAKING AIDS IN LAW PRACTICE (1985); Nagel, *Part/Whole Percentaging as a Useful Tool in Policy/Program Evaluation*, 8 EVALUATION AND PROGRAM PLANNING 107 (1985). The program is available from Stuart Nagel, Decision-Aids, Inc., 1720 Parkhaven Drive, Champaign, IL 61820.

2. Literature on expert systems software includes F. HAYES-ROTH, D. WATERMAN, & D. LENAT, BUILDING EXPERT SYSTEMS (1983); D. HUNT, ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS (1986); T. NAGY, D. GAULT, & M. NAGY, BUILDING YOUR FIRST EXPERT SYSTEM (1985).

is a multi-criteria decision-making system (hereinafter MCDM) in that it works with multiple goals, satisfying the participants by allowing concessions on each side on different goals. The MCDM perspective also facilitates new goals and alternatives which both sides can use to reach an agreement.[3]

The P/G% program can facilitate either individual problem solving or dispute resolution. It can facilitate dispute resolution through negotiation, mediation, or adjudication. The emphasis in this article will be on dispute resolution through microcomputer-facilitated negotiation and mediation using the example of the dispute of providing legal services for the underprivileged. This example will be helpful in understanding (1) how to determine initial alternatives, criteria, and relations, (2) how to attempt to resolve deadlocks by weighting the criteria and averaging the alternatives, (3) how to determine what is necessary to convince the other side, (4) how to resolve deadlocks by adding alternatives, (5) how to identify the concept of optimizing compromise as a goal to seek in dispute resolution, and (6) how various other means can be used for achieving optimizing compromises.

This article is concerned with disputes over public policy in social problems. In such circumstances, the disputants are likely to be both liberal and conservative policy-makers, generally serving in a legislative body. They could also be associated with administrative agencies, courts, interest groups, or political parties. Examples could be taken from the public policy fields that relate to environmental protection, poverty, criminal justice, and other social problems.

At the outset, one should clarify that the concept of dispute requires persons, groups, ideologies, or other entities to be in conflict over how a matter should be resolved. A problem is not necessarily a dispute, since it may only involve one person or entity trying to decide what to do. The major processes whereby disputes are resolved are through forms of negotiation, mediation, arbitration, or adjudication. In negotiation, the two or more sides interact to try to come to an agreement, which may be considered mutually desirable or may be forced by one party on the other through threats of negative sanctions. In mediation, a non-disputant tries to bring or force the disputants to reach an agreement. If the non-disputants have the power to impose a solution on the parties, then they are generally referred to as arbitrators where chosen by the parties, or as judges where the non-disputants are imposed on the parties. Mediators generally seek solutions that will be considered mutually

3. Literature on multi-criteria decision-making includes C. HWANG & K. YOON, MULTIPLE ATTRIBUTE DECISION MAKING: METHODS AND APPLICATIONS (1981); M. ZELENY, MULTIPLE CRITERIA DECISION MAKING (1981); R. STEUER, MULTIPLE CRITERIA OPTIMIZATION: THEORY, COMPUTATION, AND APPLICATION (1986); S. NAGEL, EVALUATION ANALYSIS WITH MICROCOMPUTERS (1987).

satisfying by the parties. Arbitrators and judges seek solutions that are considered correct in accordance with a body of past practice, common sense, or rules, and the solutions may not be mutually satisfying. Arbitrators as compared to judges tend to place more emphasis on past custom and less on past recorded cases. They also place more emphasis on uncodified common sense and less emphasis on codified rules.[4]

This article is organized in terms of the following ideas:

1. In resolving disputes through the multi-criteria decision-making of the P/G% program, one needs to indicate:
   (a) the alternatives from which to choose;
   (b) the criteria for judging the alternatives;
   (c) how the alternatives relate to the criteria; and
   (d) recognition that all three elements may be subject to change.
2. If clarifying the alternatives, criteria, and relations results in a deadlock or continued dispute, then MCDM and P/G% may be able to resolve the dispute through the following means:
   (a) averaging the alternatives with or without weighting the criteria;
   (b) determining what it would take to convince the other side; and/or
   (c) adding a new alternative.
3. The idea of an optimizing compromise or a win-plus solution where each side comes out ahead of its original best expectations can be illustrated by:
   (a) the dispute over how to provide legal service to the poor;
   (b) criminal and civil litigation;
   (c) other legal policy controversies such as sentencing, pre-trial release, and housing for the poor; and/or
   (d) legislative redistricting.

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4. For details concerning various aspects of negotiation, *see also* H. RAIFFA, THE ART AND SCIENCE OF NEGOTIATION (1982); G. NIERENBERG, FUNDAMENTALS ON NEGOTIATING (1973). Many of the ideas contained in the Nierenberg book have been incorporated into a computer program which emphasizes relevant checklists. The program is available from Roy Nierenberg, Experience in Software, Inc., 2039 Shattuck Avenue, Suite 401, Berkeley, CA 94704. For another microcomputer program relevant to facilitating negotiation, *see* Winter, *An Application of Computerized Decision Tree Models in Management-Union Bargaining*, 15 INTERFACES 74 (1985).

For details concerning arbitration, *see* DOMKE COMM. ARBITRATION (Wilner rev. ed. 1986); F. ELKOURI, HOW ARBITRATION WORKS (1981); F. KELLOR, AMERICAN ARBITRATION: ITS HISTORY, FUNCTIONS AND ACHIEVEMENTS (1948). These books contain useful comparisons of arbitration and adjudication including commercial, labor, family, and international arbitration, including civil, criminal, and appellate adjudication.

For a broader treatment of alternative methods of dispute resolution, *see also* S. VAGO, LAW AND SOCIETY (1981); R. KIDDER, CONNECTING LAW AND SOCIETY (1983); L. MAYERS, THE AMERICAN LEGAL SYSTEM: THE ADMINISTRATION OF JUSTICE IN THE UNITED STATES BY JUDICIAL, ADMINISTRATIVE, MILITARY, AND ARBITRAL TRIBUNALS (1955). For even broader ideas on resolving disputes, *see* L. RUBY, LOGIC: AN INTRO-

4. Microcomputer-based procedures for resolving disputes can be generalized to cover:
   (a) changing alternatives;
   (b) changing the criteria;
   (c) changing the relations; and/or
   (d) using P/G% to decide among the methods for resolving disputes.[5]

II. DETERMINING THE INITIAL ALTERNATIVES, CRITERIA, AND RELATIONS

A. *The Alternatives*

The basic alternatives in the public policy dispute over how to provide legal services to the poor are a volunteer system or a program of salaried government lawyers. The Reagan Administration has repeatedly proposed that legal services for the poor should be provided by volunteer lawyers with no federal appropriation. Congress voted in favor of salaried government lawyers working for the Legal Services Corporation.[6] Interestingly, the disputants generally agree on (1) the conflicting alternatives, (2) the basic criteria for determining the best alternative, and (3) the manner in which to score on each criterion. They disagree, however, on which alternative is best, largely because they disagree on the relative importance of the various criteria. Until recently, they have not adequately explored dispute-resolving alternatives.[7]

Other methods exist which provide legal services to the poor in addition to programs of government lawyers or volunteer attorneys.

DUCTION (1950); J. BURNHAM & P. WHEELRIGHT, PHILOSOPHICAL ANALYSIS (1932). These two books include literature on the logic of resolving dilemmas.

5. On application of Policy/Goal Percentaging to facilitate judicial and arbitral decisions based on prior precedents or instances, *see* Nagel, *Using Microcomputers and P/G% to Predict Court Cases*, 18 AKRON L. REV. 541 (1985); Nagel, *Microcomputers and Improving Social Science Prediction*, 10 EVALUATION REV. 635 (1986). On the application of Policy/Goal Percentaging to facilitate arbitration and judicial decisions that are based on evaluating consequences, *see* S. NAGEL, PUBLIC POLICY: GOALS, MEANS, AND METHODS (1984).

6. On the conflict between the Reagan White House and the Congress over the Legal Services Corporation, *see* Caplan, *Understanding the Controversy Over the Legal Services Corporation*, 28 N.Y.L. SCH. L. REV. 583 (1983); Hannon, *The New Legal Services Corporation: This Is Independence?*, 9 OKLA. CITY U. L. REV. 412 (1984); Kaegler, *The Legal Services Corporation: Past, Present, and Future*, 28 N.Y.L. SCH. L. REV. 593 (1983); Turner, *President Reagan and the Legal Services Corporation*, 15 CREIGHTON L. REV. 711 (1982).

7. On the alternative ways of providing legal services for the poor in general, *see* Legal Services Corp., *The Delivery System Study: A Policy Report to the Congress and the President of the United States* (1980); LEGAL PROBLEMS OF THE POOR: CASES AND MATERIAL (1975); E. JARMEL, LEGAL REPRESENTATION OF THE POOR (1972); RESEARCH ON LEGAL SERVICES FOR THE POOR AND THE DISADVANTAGED: LESSON FROM THE PAST AND ISSUES FOR THE FUTURE (B. Garth ed. 1983); *Delivery of Legal Services*, 11 LAW AND SOC. REV. 1 (1976).

Another approach, that at one time was considered an important third alternative, is a Judicare system. Under this system, designated lawyers would represent the poor while the government would pay the expenses incurred in accordance with a fee schedule. This is analogous to the Medicare system for providing medical services to the poor. Judicare has been rejected by conservatives as too expensive and rejected by liberals as only covering routine case handling, with no organized law-reform elements.

Each of the basic alternatives has a number of variations. The volunteer system, for example, could involve (1) mandatory volunteering in order to renew one's license, although mandatory volunteering sounds contradictory; (2) volunteering with substantial federal funds to coordinate and train the volunteers; and (3) volunteering to handle cases for a fee similar to the handling of federal criminal cases for indigent defendants.[8] The salaried government program has such variations as (1) a program that is restricted to routine cases with no suing of government officials, no law reform, and no research back-up agencies; (2) a program that is subject to being vetoed by local politicians and bar officials which may thereby limit its independence, (3) a circuit-riding program designed to cover a wide territory with lawyers being present in different places on different days, (4) a program that combines civil and criminal cases, and (5) a program that emphasizes law reform with routine cases being handled through a Judicare system.[9] The Judicare system has such variations as (1) not allowing clients to go to any lawyer, but just to certain firms that have a contract with the federal government to represent poor people, (2) a reimbursement system with or without fee control, and (3) private sector lawyers only for certain types of cases, only in desolate geographical areas, or with other restrictions.[10]

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8. On the volunteer system for providing legal services for the poor, *see* D. ROSENTHAL, R. KAGAN, & D. QUATRONE, VOLUNTEER ATTORNEYS AND LEGAL SERVICES FOR THE POOR: NEW YORK'S CLO PROGRAM (1971); Nussbaum, *Attorney's Fee in Public Interest Litigation*, 48 N.Y.U.L. REV. 301 (1973); J. HANDLER, E. HOLLINGSWORTH, & H. ERLANGER, LAWYERS AND THE PURSUIT OF LEGAL RIGHTS (1978); Maddi & Merrill, The Private Practicing Bar and Legal Services for Low-Income People, American Bar Foundation Series on Legal Services for the Poor (1971); Abel, *Law Without Politics: Legal Aid Under Advanced Capitalism*, 32 UCLA L. REV. 474; Maher & Turza, *Is Mandatory Pro Bono a Good Idea?*, *8* BAR LEADER 18 (1983).

9. On the system of salaried government lawyers for the poor, *see* J. HANDLER & L. WELLS, NEIGHBORHOOD LEGAL SERVICES: NEW DIMENSIONS IN THE LAW, (1966); *The O.E.O. Legal Services Program*, 14 CATH. LAW. 99 (1968); Lowenstein & Waggoner, *Neighborhood Law Offices: The New Wave in Legal Services for the Poor*, 80 HARV. L. REV. 805 (1967); *Legal Services: Guides, Law, Regulations*, POVERTY LAW REPORTER 8000 (1972); H. STUMPF, COMMUNITY POLITICS AND LEGAL SERVICES: THE OTHER SIDE OF THE LAW (1975); A. CHAMPAGNE, LEGAL SERVICES: AN EXPLANATORY STUDY OF EFFECTIVENESS (1976).

10. For information concerning the Judicare system, *see* S. BRAKEL, JUDICARE: PUBLIC FUNDS, PRIVATE LAWYERS, AND POOR PEOPLE (1974); Brakel, *Prospects of Private Bar*

In this article, partly as a form of shorthand, the position which favors a system of volunteer attorneys will be referred to as the conservative position, while favoring of a system of salaried government attorneys will be referred to as the liberal position. The conservative position has internal diversity, since volunteer systems can range from traditional legal aid with no government incentives to heavily funded volunteer systems with compensation for volunteering or sanctions for not volunteering. The conservative position, however, mainly refers to traditional legal aid. Likewise the liberal position has internal diversity, since salaried government attorneys can range from attorneys who are or are not restricted to routine civil cases with no research back-up, appellate capacity, legislative drafting or testifying, group representation, or government defendants. The liberal position, however, includes as many of those activities as can be authorized.[11]

B. *The Criteria*

The basic criteria of providing legal advice to the indigent are:

1. *Inexpensiveness.* Both liberals and conservatives favor inexpensiveness or efficiency. If quality legal services can be provided for $100 million, then $150 million should not be spent. There may be disagreement as to what should be done with the extra $50 million. Neither side, however, would favor spending $150 million for what could be obtained for only $100 million.
2. *Accessibility.* The program should be accessible and visible to poor people. If one is interested in having a legal services program for the poor, then it should be a program that will be used and not one that is relatively unknown and/or especially difficult to make use of.

Involvement in Legal Services, 66 A.B.A. J. 726 (1980); Cole & Greenberger, *Staff Attorneys vs. Judicare: A Cost Analysis*, 50 U. DET. J. URB. L. 705 (1973); Goodman & Feuillan, *The Trouble with Judicare*, 58 A.B.A. J. 476 (1972); Zander, *Judicare or Staff? A British View*, 64 A.B.A. J. 436 (1978).

11. For alternatives for providing legal services to indigent defendants in criminal cases, *see* D. OAKS & W. LEHMAN, A CRIMINAL JUSTICE SYSTEM AND THE INDIGENT: A STUDY OF CHICAGO AND COOK COUNTY (1968); L. SILVERSTEIN, DEFENSE OF THE POOR IN CRIMINAL CASES IN AMERICAN STATE COURTS (1965); J. TAYLOR, T. STANLEY, B. DEFLORIO & L. SEEKAMP, A COMPARISON OF COUNSEL FOR FELONY DEFENDANTS (1972); Nagel, *Effects of Alternative Types of Counsel on Criminal Procedure Treatment*, 48 IND. L.J. 404 (1973); Wice & Suwak, *Current Realities of Public Defender Programs: A National Survey and Analysis*, 10 CRIM. L. BULL. 161 (1974).

For non-American alternatives for providing legal services for the poor, *see* ACCESS TO JUSTICE: A WORLD SURVEY (M. Capelletti & B. Garth ed. 1978); INNOVATIONS IN THE LEGAL SERVICES (E. Blankenberg & H. Meier ed. 1980); LEGAL REPRESENTATION OF THE POOR (E. Jarmel ed. 1972); PERSPECTIVES ON LEGAL AID: AN INTERNATIONAL STUDY (F. Zemans ed. 1979); WINDSOR YEARBOOK OF ACCESS TO JUSTICE (Recueil Annuel de Windsor, D'Access a la Justice, Univ. of Windsor, Faculty of Law, 1981-85).

3. *Political Feasibility.* The program should be capable of first getting through Congress, and second, not being vetoed by the president or capable of surviving a veto through a two-thirds Congressional vote.
4. *Competency.* The attorneys in the program should be reasonably competent. They should be capable of going to court, if necessary, to provide adequate representation to their clients.

Additional criteria could be added, but they are not likely to resolve the dispute. For example, liberals might include accountability as an additional criterion. On the other hand, conservatives might add the importance of accountability to local officials as a criterion. Those two criteria tend to offset each other since accountability to the poor tends to favor salaried government lawyers, whereas accountability to local officials tends to favor a volunteer system, especially one run by local bar associations.

The question of how a problem is dealt with if some of the disputants do not accept the basic criteria as being relevant has been raised. For example, some people who are opposed to legal services for the poor as an inherently trouble-making activity, like the program more if it is less accessible and the attorneys are incompetent. Such people, however, are a small segment of the opposition to salaried government lawyers. They do not need to be given substantial consideration. The President has indicated that he is not opposed to the idea of legal services for the poor even in the form of accessible competent legal services. But he opposes legal services that are provided through salaried government lawyers.

Where two or more sides differ not just in the weight they give to the criteria but also on what criteria they use, this creates no special problems for multi-criteria decision-making. One merely analyzes each offer and counter-offer in light of the conservative, liberal, or other criteria, using different criteria. Table 1, for example, would thus show different criteria on row B for conservatives than the criteria shown on row C for liberals. The object is still the same, namely to find an alternative that both sides will consider to have a high overall score in light of their respective criteria, regardless of what those criteria are. Therefore, an alternative may be determined which will be acceptable to both liberals and conservatives.

C. *The Relations*

Table 1A shows how the two alternatives score on the four criteria. Each criterion involves a simple 1-2 scale, where 1 means relatively low, and 2 means relatively high. The scoring of the relations between the alternatives and the criteria are as follows:

1. *Inexpensiveness.* The volunteer system is clearly less expensive than a system of salaried government lawyers.
2. *Accessibility.* The salaried government lawyer in the context of the Legal Services Corporation is especially accessible by way of storefront neighborhood law offices. Volunteer legal aid has traditionally been relatively inaccessible because of the difficult procedures for accessing the volunteer attorneys. For example, in Champaign County, Illinois before the Legal Services Corporation (LSC), poor people would phone the United Fund and be referred to the office of the Bar Association. They would then be referred to the chairperson of the Legal Aid Committee who would refer them to a member of the Committee who might be unavailable or who would refer them to law students in their office. The system processed about fifty cases a year before LSC, which was almost immediately processing about 100 cases per week due largely to increased visibility and accessibility.
3. *Political Feasibility.* The volunteer system is more politically feasible in the sense that no one in Congress is likely to object to attorneys volunteering to help poor people. On the other hand, there are objections to paying government salaries to such attorneys, especially if they spend a substantial amount of time developing test cases and new legal policies concerning the legal rights of the poor against landlords, merchants, employers, and

TABLE 1
Volunteer Versus Salaried Legal Services

A. WITH UNWEIGHTED CRITERIA

	Inexpens	Accessib	Polit.Fe	Competen
Volunteer	2.00	1.00	2.00	1.00
Salaried G	1.00	2.00	1.00	2.00

B. WITH CONSERVATIVE-WEIGHTED CRITERIA

	Inexpens	Accessib	Polit.Fe	Competen
Volunteer	4.00	1.00	4.00	1.00
Salaried G	2.00	2.00	2.00	2.00

C. WITH LIBERAL WEIGHTED CRITERIA

	Inexpens	Accessib	Polit.Fe	Competen
Volunteer	2.00	2.00	2.00	2.00
Salaried G	1.00	4.00	1.00	4.00

government officials, as contrasted to more routine family-oriented legal-aid matters.

4. *Competency.* The salaried system tends to generate more competent attorneys who work full-time in the field of poverty law. The volunteer system tends to bring out new attorneys who are looking for experience, or older attorneys who are trying to be helpful, but who are not as knowledgeable about poverty law matters.

One might object to using a scale of relatively low and relatively high for measuring how the alternatives score on the criteria. Such a scale has the advantage of simplicity for better understanding the dispute-resolution methodology. There is no need to use more complex measurement if simple measurement will achieve the same results. The analysis of the data will make clear that a virtual deadlock would still exist between conservatives and liberals on the volunteer system versus the salaried government system. This is so even if expensiveness were measured in exact dollars; accessibility measured in average miles from the poverty population to participating law offices, or in terms of awareness scores on the part of the potential clients; political feasibility measured in terms of the percentage of House or Senate members who would be likely to vote for allowing the alternatives to exist; and competency by average LSAT scores, grade point averages, bar exam scores, years of relevant experience, aggessiveness, or other measures of attorney competence in this context. The results would still be that those with conservative values would support the volunteer system, because it would score higher on inexpensiveness and political feasibility. Likewise, those with liberal values would still support the salaried government system because it would score higher on accessibility and competency. These results relate to the definition and empirical nature of volunteer attorneys and government salaried attorneys.

III. The Major Approaches for Resolving Deadlocks

A. *Weighting the Criteria and Averaging the Alternatives*

Table 1A shows that with those four criteria and with the reasonable scoring of the alternatives a deadlock of six points for each alternative exists. At first glance one might think the tie could be broken and the dispute resolved by recognizing that the criteria should not all receive equal weight. Table 1B uses conservative weights. Such weights put relatively more emphasis on inexpensiveness and political feasibility. Doing so means doubling the scores on those two criteria to show those criteria have more importance than accessibility and competency. Doing so in Table 1B shows that the volunteer system receives ten points, and the salaried system receives only eight points from a conservative perspective.

Table 1C uses liberal weights. Such weights put more emphasis on accessibility and competency. Doing so means doubling the score on those two criteria to show they are more important than inexpensiveness and political feasibility. Table 1C then shows the volunteer system receives only eight points, and the salaried system receives ten points. The average of the conservative ten and the liberal eight for the volunteer system is nine. Likewise, if the conservative eight and the liberal ten for the salaried system are averaged, an average of nine is obtained.

Thus, weighting the criteria does not resolve the deadlock. (It might have done so if liberals were to like the salaried system more than the conservatives like the volunteer system, or vice versa, assuming liberals and conservatives have an equal say in this controversy.) In this situation, however, their value weights are diametrically opposed in both direction and magnitude.

The results of the weighting explain that a person with conservative values is likely to prefer the volunteer over the salaried system for providing legal services to the poor. Also, if one has liberal values, one is likely to prefer salaried over volunteer lawyers for these same services. It might, therefore, be concluded that systematic policy analysis is a sham, especially with microcomputers, because its results depend on one's values. This legal services dispute, however, will show the success of systematic policy analysis.

B. *Determining What is Needed to Convince the Other Side*

Another way of resolving such disputes in addition to the system of weighting and averaging is to have one side convince the other side to adopt the other position. The P/G% system is especially helpful in showing what changes are needed in the scoring of the relations or the weighting of the goals in order to move the liberals to adopt the volunteer system or the conservatives to adopt the salaried system.

Table 2A shows what would have to be done to bring the salaried system up to the level of the volunteer system, given the conservative values. Table 1B previously showed that the salaried system receives a score of eight. Thus, there is a two point gap that the liberals need to account for to convince the conservatives that the salaried system is as desirable as the volunteer system. Table 2A shows twelve ways that gap could theoretically be closed. Reading down the columns the alternatives are:

1. *Inexpensiveness.*
    a. The volunteer system receives a "no" on inexpensiveness.
    b. The salaried system receives a "yes" on inexpensiveness.
    c. Inexpensiveness receives a weight of zero.

Any one of those three changes would generate a tie by bringing the volunteer system from a score of ten to an eight as in possibility 1a,

by bringing the salaried system from a score of eight to a ten as in possibility 1b, or by bringing both down to a score of six as in possibility 1c. All three possibilities, however, are quite unrealistic. Conservatives are not going to perceive that the volunteer system is really an expensive system, or that the salaried system is an inexpensive one, or that inexpensiveness is of no importance.

2. *Accessibility.*
    a. The volunteer system receives a negative one on accessibility, but that is impossible since the scale only goes as low as one and as high as two.
    b. The salaried system receives a four on accessibility, which is also impossible.
    c. Accessibility receives a weight of three. That is not impossible. However, it is unlikely that accessibility would receive more weight than inexpensiveness and political feasibility in the values of conservatives.
3. *Political Feasibility.* There are three possibilities here. They are the same unrealistic possibilities as were previously discussed under inexpensiveness.
4. *Competency.* There are also three possibilities here. They are the same impossible and unlikely possibilities discussed under accessibility.

Table 2B shows what it would take to bring the volunteer system up to the level of the salaried system given liberal values. Table 1C previously showed that with the liberal weights, the salaried system receives a score of ten and the volunteer system receives a score of eight. Thus, there is a two point gap that the conservatives need to fill to convince the liberals that the volunteer system is as good as the salaried system. Table 2B shows twelve ways that gap could theoretically be made up. Those ways reading down the columns are:

1. *Inexpensiveness.*
    a. The volunteer system receives a four on inexpensiveness. That, however, is beyond the one, two scale.
    b. The salaried system receives a negative one on inexpensiveness. That, however, is also beyond the one, two scale.
    c. Inexpensiveness receives a weight of three. It is, however, unlikely that inexpensiveness will receive more weight than accessibility or competency in the values of liberals.
2. *Accessibility.*
    a. The volunteer system receives a two on accessibility. Liberals, however, are not going to perceive that the volunteer system scores are as high as possible on accessibility.
    b. The salaried system receives a one on accessibility. Liberals, however, are not going to perceive that the salaried system scores as low as possible on accessibility.

c. Accessibility receives a weight of zero, but liberals are not going to agree that accessibility is of no importance.

3. *Political Feasibility.* There are three possibilities here. They are the same impossible and unlikely possibilities discussed under inexpensiveness.
4. *Competency.* There are also three possibilities here. They are the same unrealistic possibilities discussed under accessibility.

TABLE 2
What It Would Take To Convince The Other Side

A. BRINGING THE SALARIED SYSTEM UP TO THE LEVEL OF THE VOLUNTEER SYSTEM GIVEN CONSERVATIVE VALUES

	Inexpens	Accessib	Polit.Fe	Competen
Volunteer	1.00	-1.00	1.00	-1.00
Salaried	2.00	4.00	2.00	4.00
Weight	-0.000	3.000	-0.000	3.000

B. BRINGING THE VOLUNTEER SYSTEM UP TO THE LEVEL OF THE SALARIED SYSTEM GIVEN LIBERAL VALUES

	Inexpens	Accessib	Polit.Fe	Competen
Volunteer	4.00	2.00	4.00	2.00
Salaried	-1.00	1.00	-1.00	1.00
Weight	3.000	0.000	3.000	0.000

Thus the probability seems low that liberals could convince conservatives to accept salaried legal services, or that conservatives could convince liberals to accept a volunteer system. The kind of sensitivity analysis shown in Table 2, however, is often helpful in indicating to disputants what they should emphasize in order to convince the other side as to their positions. This is a sensitivity analysis in the sense that it shows how sensitive the conclusion is to various changes in the weights of the criteria and the relations between alternatives and goals. Coincidentally, all of the threshold or break-even values shown in Table 2 are either conceptually impossible to obtain, or they are empirically unrealistic. Thus, the deadlock is not likely to be resolved by one side convincing the other.

C. *Resolving Deadlocks by Adding an Alternative*

A third alternative that has been discussed in the past is a Judicare system analagous to Medicare or Medicaid whereby poor people would go to existing private sector lawyers who would then be compensated

by the federal government. That alternative, however, is not a compromise in the sense of being a second-choice to the volunteer system for conservatives, or to the salaried system for liberals. Instead, it is a possible third choice for both sides. Conservatives now reject the Judicare system because it is substantially more expensive than salaried legal services. The Legal Services Corporation program tends to pay an attorney an annual salary of about $25,000 for which they process numerous cases, including as many as 300 divorces a year. If each case were handled by a private sector lawyer at approximately $300 apiece, that would be $90,000 just for divorce cases. Liberals reject the Judicare system because it tends to handle only routine cases, such as family law cases. Salaried legal services attorneys tend to look for precedent-setting test cases that will have high leverage in developing the legal rights of the poor.

Returning to Table 1A stimulates suggestions of deadlock-resolving alternatives. They would enhance the existing salaried Legal Services Corporation, as contrasted with a whole new system. Whatever results from the existing LSC program should seek to reduce the expensiveness of salaried government lawyers, and improve upon their political feasibility, two criteria which salaried attorneys lack. Likewise, whatever is built on the existing LSC program should seek to improve upon the lack of accessibility of volunteer attorneys and their relative lack of competency, since those are the two criteria on which volunteer attorneys admittedly are weakest.

In 1982, Professor Gerald Caplan of George Washington University was appointed Acting Director of the Legal Services Corporation. He was an excellent compromise for a number of reasons. He could appeal to liberals as one of the founders of the original Legal Services Program of the Office of Economic Opportunity under Lyndon Johnson, and a professor with credentials in both law and social science. He could appeal to conservatives as having been a leader in developing anti-crime policy in the Law Enforcement Assistance Administration under Richard Nixon and Gerald Ford. Caplan accepted the position only temporarily to salvage what was left of the LSC as a result of the dispute between the White House and Congress.

Partially following the reasoning suggested by the above analysis of Table 1A and others, Gerald Caplan proposed to require that all Legal Services Agencies spend ten percent of their budgets for the development of a meaningful volunteer system. The money would be used mainly for two purposes. The first purpose would be to make volunteers more accessible. A survey should be made in each community of all the attorneys to determine first, which ones are willing to do volunteer work; second, what their specialties are; and third, what days and times they are available. The second step involves maintaining a well-organized

database of relevant information on volunteers. Appointments can then be scheduled for them with legal services clients who have problems that relate to their specialties at the regular Legal Services Agency office. The volunteers are therefore just as accessible to the clients as the regular attorneys. The clients are unable to tell the difference. The volunteer attorneys do not suffer the frustration of having no clients, irrelevant clients, or long waiting periods with nothing to do, as can happen under the old system.

The second purpose of the ten percent funding would be to provide training to improve the competency of the volunteers. These well coordinated volunteers, however, would not need as much training as they would be handling cases in fields with which they are already familiar, rather than generalized poverty law. Additionally, the volunteers could benefit from materials and workshops that relate their current fields of practice to the problems of poor people. Thus, a real estate lawyer may not be completely aware of special statutes and precedents that relate to poverty tenants, and a lawyer who is an expert on the Commercial Code may not be completely aware of procedures that relate to poverty consumers.

Even if this works, it can still be argued that public policy is arbitrary since the ten percent figure seems to have no foundation. On the contrary, the ten percent represents approximately the maximum amount that could possibly be spent on coordinating the accessibility and improving the competency of the volunteer attorneys. The Legal Services Program is funded at approximately $300 million a year. Ten percent represents $30 million. For $30 million, all the coordinating surveys, cardfiles, training manuals, and workshops necessary can be purchased. A skeptic might argue that the $30 million taken away from other LSC activities may mean laying off some regular LSC lawyers or other personnel. That is true, but if spending $30 million brings in $60 million worth of accessible and competent volunteer attorneys, then the investment will have been worth it.

IV. Optimizing Compromises

A. *Legal Services for the Poor*

Table 3A shows how the ten percent compromise compares with the other two alternatives. The first two rows of Table 3A are the same as Table 1A since the scoring of the volunteer and salaried systems have not changed. On all four criteria, the compromise system does well.

First on inexpensiveness, the compromise system is not as inexpensive as a volunteer system. It is, however, less expensive than a salaried system in two ways. It reduces the appropriation for the purely salaried system by ten percent. More importantly, the ten percent compromise

produces a better cost/benefit ratio. The cost stays the same at $300 million under both programs. If the amount of valuable attorney labor goes up as a result of adding the volunteer component, then the total system is more economic and is less expensive for the value received, because there is more attorney labor for the same $300 million. Therefore, the score of ten percent compromise is assessed at one and one-half on inexpensiveness, between the two for the volunteer system and the one for the salaried system.

TABLE 3
The 10 Percent Compromise

A. WITH UNWEIGHTED CRITERIA

	Inexpens	Accessib	Polit.Fe	Competen
Volunteer	2.00	1.00	2.00	1.00
Salaried G	1.00	2.00	1.00	2.00
Compromise	1.50	2.00	2.00	2.00

B. WITH CONSERVATIVE VALUES

	Inexpens	Accessib	Polit.Fe	Competen
Volunteer	4.00	1.00	4.00	1.00
Salaried G	2.00	2.00	2.00	2.00
Compromise	3.00	2.00	4.00	2.00

C. WITH LIBERAL VALUES

	Inexpens	Accessib	Polit.Fe	Competen
Volunteer	2.00	2.00	2.00	2.00
Salaried G	1.00	4.00	1.00	4.00
Compromise	1.50	4.00	2.00	4.00

NOTES:

1. The alternative ways of providing legal counsel to the poor include:
   (1) Volunteer attorneys, favored by the White House;
   (2) Salaried government attorneys, favored by the Congress; and
   (3) A compromise that involves continuing the salaried system, but requiring that 10 percent of its funding go to making volunteers more accessible and competent.
2. The criteria are inexpensiveness, accessibility, political feasibility, and competence. Each alternative is scored on each criterion on a 1-5 scale.

3. Conservative values involve giving a weight of 2 to inexpensiveness and political feasibility when the other criteria receive a weight of 1. Liberal values involve giving a weight of 2 to accessibility and competence when the other criteria receive a weight of 1.
4. With conservative values, the volunteer system wins over the salaried system 10 points to 8. The compromise is an overall winner with 11½ points.
5. With liberal values, the salaried system wins over the volunteer system 10 points to 8. The compromise is an overall winner with 11½ points.
6. The "10 percent compromise" is thus a super winner in being better than the original best solution of both the conservatives and the liberals.

No reduction in accessibility is necessary because of adding volunteers who meet with poor clients during regular hours at the offices of the Legal Services Agency. They are thus just as accessible to the clients as the regular agency attorneys.

Political feasibility tends to be a matter of being on or off and not so much a matter of degrees. The salaried government attorney system lacks political feasibility in the sense that it is strongly opposed by the White House; it has some substantial difficulty getting through both houses of Congress without considerable anguish and friction; and it runs into administrative problems due to White House hostility. The ten percent compromise system has, however, manifested its political feasibility by not being as strongly opposed by the White House, by getting through Congress more easily, and by having less administrative sabotage and turmoil.

As to competency, adding the volunteer component does not substantially lower the competency if the volunteers work primarily in their specialties and receive appropriate training. They may sometimes even add useful specialized knowledge to the regular attorneys who are more generalists in poverty law.

Given those scores on the compromise row of Table 3A, the ten percent compromise receives a total score of seven and one-half as compared to the six of the volunteer system and the six of the salaried system. Therefore, this compromise has attributes acceptable to both the conservatives and liberals, and its score reflects acceptance by both of those groups.

Table 3B shows how the ten percent compromise scores on the four criteria given the conservative weights which emphasize inexpensiveness and political feasibility. Table 3B differs from Table 3A in that the raw scores are doubled on the inexpensiveness column and on the political

feasibility column. The result is that the volunteer system receives a score of ten and the salaried system receives a score of eight, as mentioned in discussing Table 1B. Note, however, that the compromise alternative receives a total score of eleven which is even higher than the previous first choice using conservative values.

Table 3C shows how the ten percent compromise scores on the four criteria given the liberal weights which emphasize accessibility and competence. Table 3C differs from Table 3A in that the raw scores are doubled on the accessibility and competency columns. The result is that the volunteers receive a score of eight, salaried attorneys receive a score of ten, and the compromise system receives a still higher score of eleven and one-half using liberal values.

This is an excellent illustration of the concept of an optimizing compromise which is an additional alternative rather than the previous first choice of either set of disputants using their own values to weight the criteria and their own perceptions to score the alternatives on the criteria. Acceptable compromises that are everybody's second choice are often difficult to achieve, although the P/G% microcomputer program does facilitate such compromises by clarifying the criteria, the alternatives, the relations, and especially the effects of changing any of those components on the conclusion as to which alternative is best. The incremental difficulty of achieving optimizing compromises should be more than offset by the incremental gain in terms of satisfying conservative and liberal disputants, and in terms of benefitting the recipients of the public policies that are adopted.

B. *Optimizing Solutions in Criminal and Civil Cases*

In addition to the optimizing solutions presented in the legal services for the indigent example, it is also possible to present optimizing or win-plus solutions in other legal disputes. A win-plus solution is one in which both sides come out ahead of their best expectations, not just ahead of their worst expectations. The latter is sometimes referred to as a win-win solution or a Pareto optimum, rather than an optimizing solution. Win-plus solutions are facilitated by microcomputers because microcomputers allow for easy trial-and-error experimenting until the type of solution is achieved.[12]

Suppose in a criminal case, the prosecutor's optimum position is a five year sentence. That means the prosecutor considers five years to

12. The so-called win-win solution is where both sides come out ahead of their worst expectations and they feel pleased because they were willing to give in more than they did. This is in contrast to a win-plus solution where both sides come out ahead of their best expectations. For more on the win-win concept, *see* R. FISHER & W. URY, GETTING TO YES: NEGOTIATING AGREEMENT WITHOUT GIVING IN (1981); S. NAGEL & M. NEEF, DECISION THEORY AND THE LEGAL PROCESS (1979).

be the maximum realistic number of years that the defendant would be willing to spend in prison. Five years may be less than the maximum which the statute allows. If five years is the prosecutor's optimum, then the prosecutor might be willing to settle for as little as two years. On the other hand, the defendant's optimum might be one year as the best possible settlement. That means the defendant might be willing to settle for as much as three years in prison.

An optimizing solution would thus be one which allows the prosecutor to have a settlement of more than five years and allows the defendant to have a settlement of less than one year. That seems impossible, but not necessarily so if the disputants can move on to a different settlement dimension, such as community service. On that dimension, an agreement may be reached in which the defendant agrees to serve ten years in a monastery. From the prosecutor's point of view, that may be better than five years in prison. From the defendant's point of view, that might be better than one year in prison. Thus, ten years of monastic community service is an optimizing compromise where both sides feel they have come out ahead of their original optimum positions.

Likewise, in a damages case, the plaintiff may initially demand $100,000, anticipating that amount to be substantially higher than the defendant would ever be willing to pay. The defense side, on the other hand, might initially offer $10,000, anticipating that amount to be substantially lower than the plaintiff would ever be willing to settle for. An optimizing compromise would be one in which the plaintiff gets the equivalent of more than $100,000 and the defendant pays the equivalent of less than $10,000. That kind of settlement also seems impossible, but again not necessarily so if the disputants can move on to a different settlement dimension, such as a performance agreement.

Under a performance agreement, the defendant might be willing to promise to comply with certain quality standards in the workplace, in medical practice, or in product manufacturing. The defendant might consider such an agreement to be a victory because of favorable publicity over his competitors by entering into such an agreement. The plaintiff might also consider such an agreement to be a victory because of the benefits received by the plaintiff's constituents. In that sense, the defendant may feel he is getting more than $100,000 worth of benefits. The plaintiff may, however, feel he is losing less than $10,000, and is actually gaining something of net value.

Table 4 shows computer printouts that were generated by a computer program called Best Choice which can process a set of alternatives being considered, criteria for evaluating them, and relations between alternatives and criteria in order to arrive at optimizing or win-plus solutions.

In the civil case, the object is to find a win-plus alternative that will be considered by the plaintiff to be higher than receiving $100,000,

TABLE 4
Finding A Win-Plus Solution In Civil and Criminal Cases

I. THE CIVIL CASE

A. THE ALTERNATIVES AND THE CRITERIA

Alternative	Criterion	Meas. Unit	Weight
1 P's Best >$100,000	1 P's Happiness	1-5 Scale	1.00
2 D's Best <$20,000	2 D's Happiness	1-5 Scale	1.00
3 A Win + Solution			

B. SCORING EACH ALTERNATIVE ON EACH CRITERION

	P's Happ	D's Happ
P's Best >$100,000	4.00	1.00
D's Best <$20,000	1.00	4.00
A Win + Solution	5.00	5.00

C. THE OVERALL SCORES OF EACH ALTERNATIVE

	Combined Rawscores
P's Best >$100,000	5.00
D's Best <$20,000	5.00
A Win + Solution	10.00

II. THE CRIMINAL CASE

A. THE ALTERNATIVES AND THE CRITERIA

Alternative	Criterion	Meas. Unit	Weight
1 P's Best 10 Years	1 P's Happiness	1-5 Scale	1.00
2 D's Best Probation	2 D's Happiness	1-5 Scale	1.00
3 A Win + Solution			

B. SCORING EACH ALTERNATIVE ON EACH CRITERION

	P's Happ	D's Happ
P's Best 10 Years	4.00	1.00
D's Best Probation	1.00	4.00
A Win + Solution	5.00	5.00

C. THE OVERALL SCORES OF EACH ALTERNATIVE

	Combined Rawscores
P's Best 10 Years	5.00
D's Best Probation	5.00
A Win + Solution	10.00

and be considered by the defendant to be lower than paying $20,000. In the criminal case, the object is to find a win-plus alternative that will be considered by the prosecutor to be better than a ten year sentence, and be considered by the defendant to be better than probation. In both types of cases, the combination of the plaintiff's happiness and the defendant's happiness is the overall goal to be maximized in order to facilitate out-of-court settlements. Both goals are measured on one through five scales with equal weight. The plaintiff's original best alternative would make the plaintiff quite happy, but the defendant quite unhappy, whereas the defendant's original best alternative would have the opposite effect in either the civil or criminal case. These are two possible reactions.

First, plaintiff considers that solution to be worth more than $100,000 because the plaintiff feels he will live to about the age of eighty-five and thus accumulate $200,000. Second, defendant considers that solution to be worth less than $20,000 because the plaintiff is only forty-five and may never live to sixty-five, the plaintiff may live to sixty-five but not necessarily to eighty-five, and $20,000 can be invested now at ten percent a year, and it will be worth $135,000 by the time the plaintiff reaches age sixty-five and $405,000 by the time the plaintiff reaches eighty-five minus the effect of payments of $10,000 per year.

Such optimizing or win-plus solutions can often be provided in civil cases by talking in terms of whatever product the defendant has to offer. Most defendants in civil cases do sell something like insurance, municipal transportation, automobiles, or something else of value. For example, when General Motors is sued, they might be quite willing to give the plaintiff a Cadillac or a certificate for a lifetime of Chevrolets or other GM cars. The total variable cost to General Motors may be quite small. The monetary benefit to the plaintiff may be quite large in terms of money saved or the resale value of the automobiles. Likewise, when the Chicago Transit Authority is sued, they could sometimes offer valuable lifetime passes for the plaintiff and his family members. The variable cost to the CTA is almost nothing, whereas the monetary benefit to the plaintiff might be quite substantial. Thus, getting away from the exchange of money and into other criteria, especially products or services of the defendant, can lead to dispute resolutions in which all sides gain more than their best expectations, rather than merely more than their worst expectations.[13]

The win-plus solution in the criminal case might involve the defendant

13. On the settlement of civil cases out of court, *see* S. NAGEL & M. NEEF, DECISION THEORY AND THE LEGAL PROCESS 141-46 (1977); L. ROSS, SETTLED OUT OF COURT (1970); Posner, *An Economic Approach to Legal Procedure and Judicial Administration*, 2 J. Legal Stud. 399 (1973).

agreeing to commit himself to a long-term non-prison institutionalization, such as being part of a disease research program in a monastery or leper colony. The possible reactions are first, the prosecutor might find that solution to be worth more than ten years in prison if more than a ten year commitment exists, especially since a ten year prison sentence may mean release after five years or less with time off for good behavior. The prosecutor might be especially happy since the state does not pay for monastery incarceration, and the maximum sentence specified in the statute is ten years. Second, the defendant might find that solution better than probation because no plea of guilty exists, and because the defendant's personality and aspirations may find pleasure in monastery life or even martyrdom to disease research.[14]

The increase in use of community-based corrections and intensive probation is making possible more win-plus solutions in criminal cases. Often, a community-based correction for a long term is considered to be severe from the prosecutor's perspective and to save the county money on the other side from the defendant's perspective, such a disposition may be lenient compared to going to prison regardless how short the time is. Military service has in the past often resulted in optimizing compromises. Requiring a 19-year-old defendant to join the army was considered a form of long-term community service by the prosecutor with no cost to the county. It was, however, considered more desirable than going to prison from the defendant's perspective. Such optimizing compromises may facilitate obtaining plea bargains, but if they are viewed as being too lenient from the defendant's perspective, they may interfere with the deterrent purpose of criminal sentencing.[15]

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14. The win-plus or optimizing solution should be distinguished from the so-called "super-optimum" goal or solution. A super-optimum solution refers more to legislation than to litigation or negotiation. It refers to goals that are higher than the traditional optimum. For example, the traditional optimum in unemployment legislation is to reduce unemployment down to zero or near zero. A super-optimum solution in effect seeks to go beyond zero by not only providing jobs for all those in the labor force who are unemployed, but also by adding to the labor force people who are otherwise considered unemployable or not seeking jobs. That includes the elderly, the handicapped, and unmarried women with young children. Such a super-optimum solution might also involve providing full-time jobs for the part-time employed or underemployed who are seeking full-time jobs, but who are not listed as unemployed. Likewise, a super-optimum goal or solution in the unemployment context might involve providing second jobs for those who would like to have them, but who are not listed as unemployed if they already have one job. For applications to other fields of public policy, *see* S. Nagel, *Doing Better than the Optimum* (unpublished paper available from the author, 1987).

15. On the settlement of criminal cases through plea bargains, *see* D. NEWMAN, CONVICTION: THE DETERMINATION OF GUILT OR INNOCENCE WITHOUT TRIAL (1966); A. ROSSETT & D. CRESSEY, JUSTICE BY CONSENT: PLEA BARGAINS IN THE AMERICAN COURTHOUSE (1976); Alschuler, *The Defense Attorney's Role in Plea Bargaining*, 84 YALE L.J. 1179 (1975); Alschuler, *The Prosecutor's Role in Plea Bargaining*, 36 U. CHI. L. REV. 50 (1968); Nagel & Neef, *Plea Bargaining Decision Theory, and Equilibrium Models*, 51, 52 IND. L.J. 987, 1 (1976).

C. *Other Public Policy Examples*

Examples of optimizing compromises involving emotional public policy disputes arise in various other fields. For example, in the field of criminal justice, considerable controversy has arisen concerning the manner in which to draft sentencing legislation. Generally, conservatives are especially concerned with obtaining severe sentences. Liberals have traditionally been concerned with rehabilitative sentences. Both sides can be considered as optimizing winners under the new determinate sentencing which many states have adopted. Conservatives have succeeded in obtaining more severe sentences on the average, since the new determinate sentencing often provides for mandatory minimums or relatively high determinate sentences as part of legislative bargaining, or both. Conservatives have also received a bonus of greater objectivity in the sentencing by virtue of the lessened sentencing discretion and the greater predictability of sentences. Liberals have gained a more rehabilitative system by virtue of the emphasis now placed on community-based corrections, including supervised work-release programs. Liberals have also received the bonus of greater objectivity, with reduced disparities along racial, class, sex, and other lines.[16]

Pretrial release is another example. Conservatives emphasize the need for getting a higher percentage of defendants to appear in court without committing crimes between arrest and trial. Their previous first choice was high holding rates as a pretrial release policy. Liberals emphasize the need for enabling defendants to be able to establish their innocence and to avoid the bitterness generated by pretrial detention. The liberals' previous first choice was low holding rates as a pretrial release policy. Both sides are optimizing winners with the new bail reform systems which emphasize screening, supervising, notifying, selectively prosecuting, and reducing delay. Those reform measures please conservatives because they result in higher appearance-rates without crime committing in the interim while saving taxpayer money by having less pretrial holding. Those reform measures also please liberals because they result in low holding-rates without an undesirable increase in no-shows and crime-committers.[17]

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16. On the debate over determinate sentencing and sentencing reform, *see* D. CURTIS, TOWARD A JUST AND EFFECTIVE SENTENCING SYSTEM: AGENDA FOR LEGISLATIVE REFORM (1977); A. DERSHOWITZ, FAIR AND CERTAIN PUNISHMENT (1976); R. SINGER, JUST DESSERTS: SENTENCING BASED ON EQUALITY AND DESSERT (1979); Nagel & Levy, *The Average May Be the Optimum in Determinate Sentencing*, 42 U. PITT. L. REV. 583 (1981).

17. On the debate over pretrial release, *see* W. THOMAS, A DECADE OF BAIL REFORM (1976); P. WICE, FREEDOM FOR SALE: A NATIONAL STUDY OF PRETRIAL RELEASE (1974); Nagel, Neef & Schramm, *Decision Theory and the Pre-Trial Release Decision in Criminal Cases*, 31 U. MIAMI L. REV. 1433 (1977).

The housing and urban development field is another example of compromises that have been developed which appeal to both conservatives and liberals. Until recently, conservatives have been largely opposed to government programs to provide housing for the poor, arguing that the marketplace could adequately cover the needs involved. Likewise, until recently, liberals have been in favor of public housing projects, arguing they were needed because the marketplace could not adequately provide housing for the poor. Both sides felt quite emotional about the subject, as indicated in the congressional debates over public housing from the 1930s to the 1970s. During the 1970s, however, new ways of providing government involvement were developed. The most important new approach has been the rent and mortgage supplements. Those supplements are probably now considered by conservatives to be better than their original first choice of leaving the matter completely to the marketplace because the government subsidies convert anti-social poor people into more respectable tenants and even homeowners; the taxpayer saves money since the rent supplements cost less than building and maintaining public housing projects; and the rental market welcomes the rent subsidies. Rent supplements are now probably considered by liberals to be better than their original first choice of public housing because rent supplements mean more dignity for poor people, and they mean more scattering of poor people with resulting racial and economic integration.[18]

Such optimizing compromises are possible when the disputants emphasize different criteria that can be simultaneously satisfied. That may more often be the case in dispute resolution than is generally recognized. The P/G% approach helps bring out more clearly the criteria, weights, alternatives, constraints, and relations of both sides so as to facilitate such compromises. A simple example of an optimizing compromise where the disputants emphasize different criteria would be a situation where Disputant A wants a red ball, and Disputant B wants a heavy ball. The optimizing solution is to give them a ball that is red and heavy. One could, however, arrive at an optimizing compromise where the disputants all emphasize the same criterion such as color, rather than different criteria such as color and weight. For example, if Disputant A wants a red ball and Disputant B wants a blue ball, they could be given a purple ball. That, however, is just a traditional compromise, not an optimizing compromise. It just gives them something better than their worst expectations, not something better than their best expectations.

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18. On the debate over public housing and housing for the poor, *see* N. DORSEN & S. ZIMMERMAN (eds.), HOUSING FOR THE POOR: RIGHTS AND REMEDIES (1967); L. FREEDMAN, PUBLIC HOUSING: THE POLITICS OF POVERTY (1969); R. MUTH, PUBLIC HOUSING: AN ECONOMIC EVALUATION (1973).

An optimizing compromise in that situation might be to give them a solid gold ball to share. No part of the ball is either red or blue, but they would probably be overjoyed to sell the solid gold ball for $800,000 and to divide the proceeds to buy all the red and blue balls they might want. The $800,000 is based on gold selling at $500 an ounce and the solid gold ball weighing 100 pounds. The Camp David Agreement may be like the golden ball. Israel wanted control over the West Bank, and Egypt wanted autonomy for the West Bank. The Agreement in effect provided both of them with tremendous foreign aid, and the West Bank was still largely unresolved. Everybody went home happy, and this was considered the Carter Administration's greatest accomplishment since the benefits did seem to outweigh the costs for all parties concerned.[19]

To keep things in perspective, examples of a more traditional compromise are needed which is each side's second choice, rather than an optimizing compromise which is considered to be better than each side's first choice. An example is the marketable pollution right in the field of environmental protection. It involves giving business firms permits to engage in various units of non-toxic, biodegradable pollution. Low polluters receive more units than they need, and high polluters receive less than they want. The high polluters therefore buy permits from the low polluters to be operating within the law. Doing so is expensive which causes the high polluters to reduce their pollution, especially if the purchase means income for a competitor. The previous first choice of conservatives concerning environmental protection has been reliance on the marketplace with no governmental regulation. The previous first choice of liberals has been pollution taxes which would provide incentives for pollution reduction and provide a clean-up fund. The conservatives like marketable pollution permits better than pollution taxes because the permits rely more on the marketplace and less on government regulation. Liberals like marketable pollution permits better than no regulation because the permits provide incentives for pollution reduction, although no funds to municipal or other governments to pay for water filtration or other clean-up activities.[20]

Clarification is needed as to how each side's second choice is able to become the compromise winner. What happens implicitly, although not explicitly, is a series of paired comparisons. Suppose three alternatives exist consisting of the conservatives' first choice, the liberals' first choice,

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19. On international bargaining, *see* C. LERCHE, PRINCIPLES OF INTERNATIONAL POLITICS 133-244 (1956); F. SCHUMAN, INTERNATIONAL POLITICS 133-81 (1953).

20. On the debate over environmental policy and pollution reduction, *see* P. DOWNING, ENVIRONMENTAL ECONOMICS AND POLICY (1984); S. KAMIENIECKI, R. O'BRIEN & CLARKE (eds.), CONTROVERSIES IN ENVIRONMENTAL POLICY (1986); S. NAGEL (ed.) ENVIRONMENTAL POLITICS (1974); G. RICHARDSON, POLICING POLLUTION: A STUDY OF REGULATION AND ENFORCEMENT (1982).

and the first choice of those who consider themselves relatively neutral. Suppose also that the conservatives and liberals are equally strong. Otherwise, the dispute would not be deadlocked. The first paired comparison might involve the conservative against the neutral choice. The neutral choice would win since it would get the votes of the liberals and the neutrals. The second comparison might involve the liberal against the neutral choice. The neutral choice would win again since it would get the votes of the conservatives and the neutrals. The third comparison might involve the conservative against the liberal choice. That comparison would result in a tie if the conservatives and liberals are equally strong and the neutrals equally divided. If the conservative or liberal choice does win in this comparison, it will still lose to the neutral or second choice alternative. Second choice compromises are good for resolving disputes, but not as satisfying as optimizing compromises that are viewed as being better by the disputants than their original first choices.

An important point to note is that there is nothing inherently liberal or conservative about seeking win-plus or optimizing solutions. For example, both President Ronald Reagan and the 1987 Democratic presidential contenders believe that through economic growth, segments of society that might otherwise be conflicting can all be better off. This includes blacks-whites, males-females, rich-poor, north-south, urban-rural, and other competing or conflicting groups. President Reagan calls it Reaganomics or supply-side economics. The Democrats call it industrial policy. The similarities may be greater than the differences. Both advocate strong use of tax breaks and subsidies to provide developmental incentives, although the Democrats may have more strings attached. On the other hand, traditional conservatism and liberalism tend to be more zero-sum oriented in the sense that they perceive that gains by one group are offset by losses of other groups. Thus, the followers of both Karl Marx and Adam Smith have tended to believe that the poor can be made better off only or mainly at the expense of the rich. In recent years, due possibly to new technological developments, the idea of a growing economic pie with bigger slices for all is becoming increasingly prevalent, with the key current issues being how best to stimulate that desired growth.[21]

D. *Legislative Redistricting*

Perhaps one of the best public policy examples for illustrating the

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21. On the growth perspective of industrial policy, *see* A. ETZIONI, AN IMMODEST AGENDA: REBUILDING AMERICA BEFORE THE TWENTY-FIRST CENTURY (1983); R. REICH, MINDING AMERICA'S BUSINESS: THE DECLINE AND RISE OF THE AMERICAN ECONOMY (1982). On the growth perspective of Reagonomics and supply-side economics, *see* V. CANTO, D. JONES & A. LAFFER, FOUNDATIONS OF SUPPLY-SIDE ECONOMICS (1983); P. ROBERTS, THE SUPPLY SIDE REVOLUTION (1984).

relevance of microcomputers to resolving negotiation disputes is legislative redistricting. That is an especially important public policy field because determining legislative districts determines who the legislators will be, which in turn has a strong influence on what public policy will be in a variety of fields.

Legislative redistricting was one of the first public policy fields to receive the benefits of computer-aided decision-making, when in the early 1960s the Supreme Court ordered legislatures to redistrict. The original motivation for using computers was largely a bookkeeping purpose to keep track of the general population and the number of Democrats and Republicans each time district lines were experimentally changed in developing a new districting plan. Soon, however, the computers were being put to use to draw experimental plans in light of criteria related to equal population per district, contiguity within districts, and proportionate or disproportionate partisan or ethnic strength.

With both the Democrats and the Republicans having easy access to user-friendly microcomputers, settlements are facilitated by quickly showing the representation each side can expect to get in light of given conditions or districts. That lends itself to traditional compromises of splitting the difference.

An example of an optimizing compromise was in the 1960s when the Illinois Republicans wanted more control over certain areas like northwestern Illinois and suburban Cook County, and the Democrats wanted more control within the city of Chicago and southern Illinois. A plan was developed where both sides did get more of what they each wanted since those were not conflicting criteria.

On the matter of the basic conflict of the percent of the total districts that would be dominated by Democrats or Republicans, often a shift in the negotiations to the golden ball of state and city patronage, contracts, and nominations, enabled both sides to feel they were coming out ahead. A specific example involved both the Democrats and the Republicans wanting to control the state in the 1950s. The Democrats won by getting the Republicans to agree to redistricting before the occurrence of the key Supreme Court case of *Baker v. Carr*[22] and after losing the case of *Colegrove v. Green.*[23] They did so by agreeing to put up a weak candidate against the Republican governor in the 1956 election. The Democrats were thus able to control the state by way of the redistricted statehouse, and the Republicans were able to control the state by way of the governor's office. This was an optimizing compromise because the Republicans were expecting to lose the governorship. The Democrats were expecting at best to pick up a few

22. 369 U.S. 186 (1962).
23. 328 U.S. 549 (1946).

House seats. As a result of the at-large election which resulted a few years later, they came close to capturing 100 percent of the seats. The only thing that kept them from doing so was that they deliberately did not run as many candidates as there were seats as a part of a trade with the state Republicans for favors to Chicago.[24]

Thus, the redistricting field lends itself to numerous examples of traditional difference-splitting compromises, optimizing compromises where each side is seeking different goals, and optimizing compromises where both sides are initally seeking the same goals, but there is room for shifting away from the original conflict so that both sides come out (at least in some important ways) better than their best expectations.

V. Other and General Microcomputer-Based Procedures for Resolving Disputes

Disputes can often be resolved by adding an alternative, especially an alternative on a new settlement dimension that results in an optimizing compromise. Microcomputers and the P/G% program can facilitate the resolving of disputes by making and testing these and other changes in the alternatives, the criteria, and the relations. Such microcomputer programs can also be used to aid in deciding among alternative processes for resolving disputes.

A. *Changing the Alternatives*

As for the alternatives, instead of adding one, subtracting an alternative might be helpful where more than two alternatives are involved. For example, by reducing three alternatives to two, a clear runoff may exist where one of the two alternatives in effect gets an especially large portion of the votes or points that would otherwise go to the third alternative. This is particularly true when the percentaging method of Policy/Goal Percentaging is used to deal with criteria on multiple dimensions, rather than the raw score approach used in the legal services example. Even with the raw score approach, the raw scores tend to be relative. Thus, Alternative B may move from a score of a four to a five on a one through five scale when Alternative B is just being compared with Alternative A after Alternative C has been removed.

Related to adding an alternative is the idea of consolidating two or more alternatives. Doing so in effect creates a new alternative. That new alternative may be an efficient (competent) compromise if only two alternatives existed at the same time of the consolidation. If more

24. For further details on the use of computers to facilitate settlements in legislative redistricting disputes, *see* S. Nagel, Improving the Legal Process: Effects of Alternatives 171-88 (1975); Nagel, *Simplified Bipartisan Computer Redistricting*, 17 Stan. L. Rev. 863 (1965).

than two alternatives exist, then consolidating can have the beneficial effect of reducing the number of alternatives.

Related to consolidating is subdividing one alternative into two or more alternatives. Perhaps one of those newly created alternatives may be a compromise alternative on which the disputants can agree. If not, some of the newly-created alternatives might be quickly eliminated as clearly inferior, thereby clarifying the situation and presenting the available options in a clearer light. Each time an addition, subtraction, consolidation, or subdivision occurs, the P/G% program can quickly show how the new alternatives compare in terms of their overall scores on the criteria, with regard to either raw scores or percentaging scores.

B. *Changing the Criteria*

All of the above approaches to making changes in the alternatives can also apply to making changes in the criteria. For example, a dispute might be more capable of being resolved by adding a criterion which brings out that Alternative B is clearly the winner, even though the two alternatives were originally tied. Likewise, subtracting a criterion could make Alternative B the winner. The same effect in terms of clarifying the winner can also occur as a result of consolidating two or more criteria or as a result of subdividing a criterion.

Unlike the alternatives, the criteria are subject to different weights to indicate their relative importance, although the alternatives are subject to different overall scores to indicate their relative importance. The overall scores of the alternatives, however, are outputs of the analysis, whereas the weights of the criteria are inputs of the analysis. By changing those criterion weights, Alternative B may become the winner. Working with different weights when all the weights were originally the same can help resolve many disputes, although doing so did not work in the legal services example. Along related lines, weights and criteria of the first disputant and the second disputant can be worked on separately. Doing so generates two sets of overall scores for the alternatives. These scores can be averaged in order to see which alternative might be a winner. The averaging can be a weighted average if one side of the dispute is considered to have more weight or to be entitled to more votes than the other sides or other disputants. This system has flexibility to work with many different situations.

Working with minimum and maximum constraints is another approach that especially applies to the criteria, although it could apply to the alternatives. For example, the subject matter of a given dispute may cause the disputants to agree that a certain criterion is desirable such as age of the person to be hired, but only up to seventy years because of a relevant retirement rule. That could eliminate some alternatives as could a minimum requirement of age twenty-one. Likewise, the subject

matter of a given dispute may make it meaningful to have a maximum and/or minimum constraint on an alternative. Perhaps, for example, the original alternatives are spending $100 on Activity P and $10 on Activity Q versus spending $90 on Activity P and $30 on Activity Q. The alternatives under consideration may be reduced if there is a maximum budget of no more than $115, a maximum expenditure on an activity of no more than $90, or a minimum expenditure on an activity of no less than $20. The P/G% program allows one to determine quickly the effects of changing minimum and maximum constraints on criteria and alternatives, as well as changing the criteria and the alternatives themselves.

C. *Changing the Relations*

In resolving disputes, the third area of potential change involves the relations between the alternatives and the criteria. What begins as a tie could possibly be resolved by changing the scores for some of the relations. One could also show the overall summation scores for the alternatives when all the relations are scored from a conservative perspective and a liberal or other perspective. Those two or more sets of overall scores can be averaged in order to arrive at an overall winner.

Along similar lines, the relations can be changed by providing for more refined measurement as when one goes from a one, two scale to a one through five scale, or less refined but clearer measurement as when one goes from a one through five scale to a one, two scale. The measurement units can be changed from a one through five scale to a scale measured in dollars, years, miles, or another dimension. Changing the measurement scale may require shifting from a raw score approach to a percentaging approach if multi-dimensionality is introduced. For example, although the raw scores on the two criteria can be added, both of which are measured on one through five scales, the raw scores from the one through five scale cannot be added to the scores from a scale measured in miles. It may, however, be meaningful to indicate how each alternative scores on each criterion in terms of the percentage relation of each raw score to the maximum raw score as possible or to the total of the raw scores on a criterion. The P/G% program works especially well with such multi-dimensionality in view of the program's emphasis on working with part/whole percentages of raw scores converted into percentages of the total points on a criterion.

VI. Using P/G% to Decide Among Methods for Resolving Disputes

A. *General Aspects of Deciding Among Alternative Procedures*

The discussion thus far has emphasized how P/G% can be used to resolve disputes, especially by quickly showing the disputants the effects

of changing the alternatives, the criteria, and the relations between alternatives and criteria. P/G% can also aid by showing the disputants the relevant benefits minus costs of alternative methods for resolving disputes. This involves two levels of dispute resolution. The lower level might be referred to as subject-matter dispute resolution, where the alternatives could be volunteer-attorney system versus salaried-government attorneys. The higher level might be referred to as process dispute resolution, where the alternatives relate to deciding among processes for resolving the subject-matter dispute resolution in question.

As mentioned earlier, the basic processes for resolving legal disputes are negotiation, mediation, arbitration, and adjudication. A frequent choice that has to be made is between a negotiated settlement and going to trial or adjudication. The P/G% program is especially useful under those circumstances. The settlement offer may be $5,000. The average trial damages in a similar cases may be $6,000, including cases in which no damages existed. The percentage fee from a settlement may be twenty percent or $1,000, whereas the percentage fee from a trial may be forty percent or $2,400. A trial, however, may be more expensive to the lawyer who is deciding between these alternative dispute resolution processes. The attorney may predict only ten hours of work to close the settlement, figuring such office time is worth $30 an hour for a total of $300. The attorney may predict twenty-five hours of work to try the case, figuring trial time at $60 an hour for a total of $1,500.

That means the predicted net profit from settling is $1,000 minus $300 for a net of $700, whereas the predicted net profit from trying the case is $2,400 minus $1,500 for a net of $900. There is thus a $200 gap between the benefits minus costs of the trial alternative versus the negotiation alternative. The P/G% program can facilitate choosing between those two alternatives by indicating for each settlement input item how it would have to change to bring the settlement profit up from $700 to $900. The program also shows how each trial input item would have to change to bring the trial profit down from $900 to $700. That information can be quite helpful in answering such specific questions as how much does the settlement offer have to increase to make settlement more profitable than trial, how much room for error is there on each of the trial items before going to trial becomes less profitable than settling, and how much would we have to cut our hours, cut the hourly cost, or increase the percentage fee to make settlement as profitable as going to trial.

Many variations on those basic ideas exist including changing the fee-paying arrangement from a percentage fee. If the case involves an hourly fee, then the total benefits equal the number of hours multiplied by the hourly fee. If the case involves a flat fee, then the total benefits equal the flat fee. Second, type of lawyer can be changed from a

plaintiff lawyer to a defense lawyer. If the lawyer is a defense lawyer, then the damages and the probability of paying them represent cost items, rather than benefit items. Third, the perspective can be changed from lawyer to client. The client perspective requires taking into consideration only the benefits and costs that affect the client. In the above example, the client receives eighty percent of the $5,000 settlement, but only sixty percent of the $6,000 trial award. The client may thus be better off with the settlement alternative, even though the lawyer is better off with the trial alternative. Fourth, a change can be made from civil to criminal cases. Doing so means introducing a non-monetary criterion since prosecutors seek long sentences, not large damages, and defense attorneys seek short sentences, not small damages. The P/G% program is especially designed to deal with multi-dimensional criteria like years and dollars through its provision for part/whole percentaging.

The choice of negotiation versus trial can also be changed to other controversies relevant to choosing the best method of dispute resolution. Some of the other choices include: arbitration versus trial, two-sided negotiation versus bringing in an outside mediator, binding versus non-binding arbitration, jury trial versus bench trial, federal court versus state court, appellate court versus staying with the trial court decision, and any other choices involving two or more alternative methods of dispute resolution.

In those choices, the decision-makers want to choose the alternative that will maximize the benefits minus costs of themselves, their clients, society, or some combination of those interests. In those choices, monetary and non-monetary benefits and costs will exist. The P/G% program is general enough to be able to handle any of those seven choices, four types of goals, and two types of measurements, provided that the decision-maker is capable of roughly expressing the criteria for choosing among the alternatives and the relations between the alternatives and the criteria. The decision-maker does not have to be extremely precise because often a substantial insensitivity range around each input item exists. That means the numerical value of each input item can generally move up or down substantially without affecting which alternative method of dispute resolution will maximize the decision-maker's benefits minus costs.[25]

25. For examples of P/G% and other quantitative analysis in deciding among alternative methods of dispute resolution, *see* Nagel, *Lawyer Decisionmaking and Threshold Analysis*, 36 U. MIAMI L. REV. 615 (1982); Staller, *The Advantages of Alternative Dispute Resolution in Tort Cases*, 31 PRAC. LAW. 57 (1985).

TABLE 5
Comparing Alternative Methods of Dispute Resolution

A. HOW THE THREE ALTERNATIVES SCORE ON FOUR CRITERIA

Alternative	Delay	Finality	Mutual B	Initiate	Combined Rawscores
1 Adjudication	1.00	2.00	1.00	3.00	7.00
2 Arbitration	2.50	3.00	2.00	2.00	9.50
3 Mediation	2.50	1.00	3.00	1.00	7.50

B. COMPARING ADJUDICATION WITH ARBITRATION

	Adjudication	Arbitration	Weight
Delay	3.50	0.00	-0.667
Finality	4.50	0.50	-1.500
Mutual Benefit	3.50	-0.50	-1.500
Initiate-Consent	5.50	-0.50	3.500

C. COMPARING ARBITRATION WITH MEDIATION

	Arbitration	Mediation	Weight
Delay	0.50	4.50	??
Finality	1.00	3.00	-0.000
Mutual Benefit	0.00	5.00	3.000
Initiate-Consent	0.00	3.00	-1.000

D. COMPARING ADJUDICATION WITH MEDIATION

	Adjudication	Mediation	Weight
Delay	1.50	2.00	0.667
Finality	2.50	0.50	1.500
Mutual Benefit	1.50	2.50	0.750
Initiate-Consent	3.50	0.50	1.250

B. *P/G% Applied to Adjudication Versus Arbitration Versus Mediation*

Table 5 uses the P/G% approach to compare three basic alternative procedures for resolving disputes, including adjudication, arbitration, and mediation. The essence of each alternative is the following:

1. Adjudication involves a full-time judge, not chosen by the parties, who can issue a binding order, but subject to appeal.

2. Arbitration involves an ad hoc conductor of a hearing, who is chosen by the parties, and who can issue a binding order.

3. Mediation involves an ad hoc conductor, chosen by the parties, who can recommend solutions, but who cannot issue a binding order.

There are four criteria used to evaluate these three alternatives. The criteria are as follows:

1. Being able to avoid delay by involving an ad hoc judge chosen

for the specific case, rather than having to wait for a judge who hears a much larger set of cases.

2. Being able to reach a decision that is considered by the parties to be binding, thereby precluding an appeal.

3. Oriented toward a solution that is mutually beneficial to the parties, rather than a solution in which one side clearly wins, and the other side clearly loses.

4. Capable of being initiated by only one side to a dispute without having to have the cooperation of the other side.

Table 5A shows how each of the three alternatives score on the four criteria. The scoring system is on a 1-3 scale, where 3 means conducive to the goal, 2 means neither conducive nor adverse, and 1 means adverse to the goal. On reducing delay, adjudication is adverse, whereas arbitration and mediation are mildly conducive to delay reduction. On finality, arbitration scores highest, mediation lowest, and adjudication in the middle. On emphasizing mutually beneficial solutions, mediation scores highest, adjudication lowest, and arbitration in the middle. On allowing an agressive party to take the initiative without the cooperation of the other side, adjudication scores highest, mediation lowest, and arbitration in the middle.

Table 5A also shows the overall scores for each of the three alternatives. When the four criteria are given equal weight, arbitration scores highest with an overall score of 9.5 points. This represents the sum of the separate scores on each of the four criteria. Mediation scores next to the highest at 7.5, but it is especially down on finality. Adjudication scores the lowest at 7.0 with approximately a one-point gap in comparison with arbitration on each of the criteria except taking the initiative.

Table 5B helps answer the question of what it would take to bring adjudication up to the desirability level of arbitration. The adjudication column shows that if any one of the adjudication scores were to move up by 2.5 points, there would be a tie. That, however, is too big a gap to be overcome by any one score on a 1-3 scale. Likewise, the arbitration column shows that if any one of the arbitration scores were to move down by 2.5 points, there would be a tie. That, however, would also mean going outside the 1-3 scale. A tie could also occur if delay, finality, or mutual benefit were viewed as having negative value, rather than a more logical positive value. The only tie-causing value that is feasible in Table 5B is the 3.5 for the weight of ability to initiate without consent of the other side. That is the key criterion which favors adjudication. If one gives that criterion a high weight in general or in a specific case, then adjudication wins over arbitration.

Table 5C helps answer the question of what it would take to bring mediation up to arbitration. There is a two-point gap to be overcome in view of the 9.5 score of arbitration and the 7.5 score of mediation.

That gap could be overcome if arbitration were to score only a 1 on finality, or if mediation were to score either a 3 on finality or a 3 on initiate. Those scores are within the 1-3 scale, but they are empirically unrealistic in view of the nature of arbitration and mediation. The weights column shows that no change in the weight of delay would help since both methods of dispute resolution receive the same score on delay. If finality were dropped as a goal, there would be a tie. If initiation without consent were considered undesirable, there would be a tie. Those changes are normatively unrealistic given the usual values of a legal system. The only tie-causing value that is feasible in Table 5C is the 3.0 for the weight of mutual benefit. That is the key criterion which favors mediation. If one gives that criterion a high weight in general or in a specific case, then mediation wins over arbitration.

Table 5D helps answer the question of what it would take to bring adjudication up to the desirability level of mediation. This is a smaller gap to overcome since mediation received an overall score of 7.5, and adjudication received a close score of 7.0. There are thus a number of changes in the adjudication or mediation scores which are within the 1-3 range, and possibly some are within a margin of error or subjective possibility. Normally, however, the relation scores are much more objective than the relative weights of the criteria. Those weights show that if the weight of finality and initiate are raised above the original weights of 1.0, then adjudication becomes the winner since those are its relative strengths. If, on the other hand, the weight of delay and mutual benefit are lowered below the original 1.0, then adjudication also becomes the winner since those are the relative strengths of mediation. This analysis is not only useful for comparing alternative methods of dispute resolution, but also for obtaining more insights into how the P/G% software can be helpful in finding the basis for an overall agreement when there is an initial conflict among alternatives.[26]

VII. Some Conclusions

In light of the above general principles and specific examples, it can be concluded that microcomputers and the P/G% program help facilitate negotiation and mediation leading to dispute resolution by proceeding in accordance with the following steps or options.[27]

1. Determine the initial alternatives, the criteria, and the relations

26. On mediation as a form of alternative dispute resolution, *see* J. Floberg & A. Taylor, Mediation: A Comprehensive Guide to Resolving Conflicts Without Litigation (1984); C. Moore, The Mediation Process: Practical Strategies for Resolving Conflict (1986); F. Sander, Mediation: A Selected Annotated Bibliography (1984).

27. For evaluations of P/G%, *see* Butler, *Nagel Writes Computer Aided Law Decisions Program*, U.S. L. News, Sept., 1986, at 22; Diennor, *How Case Evaluation Can Improve Your Practice*, 2 Profitable Law. 13 (1985); Radcliff, *Multi-Criteria Decision Making:*

between the alternatives and the criteria in light of each side's values and perceptions. The P/G% input-format facilitates clarification of those dispute parameters.

2. Determine what it would take each side to convince the other side. The threshold, break-even, or tie-causing analysis of the P/G% program facilitates that determination. If each side could at least partly convince the other side, encourage them to do so, the result may be a mutually acceptable alternative or compromise.
3. Experiment with a variety of additional alternatives, as contrasted to the original deadlocked alternatives. Use the P/G% program to determine quickly the overall or summation score for each alternative using the criterion weights of each side to the dispute. Look especially for new alternatives that could be endorsed by both sides more strongly than their original first choices. At least find an alternative that could be each side's second choice and thus serve as a compromise winner in a series of paired comparisons.
4. Try changing the alternatives by subtracting some, by consolidating two or more, or by subdividing some. Try doing the same things with the criteria. Use the P/G% program to determine the overall or summation scores of the new set of alternatives.
5. Try changing the criterion weights, or try averaging the alternatives in light of the different sets of weights which the conflicting disputants have.
6. Try working with reasonable minimum and/or maximum constraints on the criteria and/or the alternatives to see what difference that makes.
7. Try changing some of the relation scores and maybe the measurement units on which the scores are based. That may mean experimenting with the procedures in the P/G% program for dealing with criteria measured on multiple dimensions.

With this list of ideas and with the aid of the P/G% program, the negotiator or mediator in a dispute should be able to experiment quickly with different ideas toward arriving at an optimizing compromise that will be even better than the disputants' former first choices. This is an enormous goal to try to achieve. Getting only partly there, however, may mean more accomplishment in terms of arriving at mutually satisfying solutions than any lesser goal would be capable of achieving.[28]

A Survey of Software, 4 SOC. SCI. MICROCOMPUTER REV. 38 (1986); Brunelli, *Coin-flip or Computer? Systemization of Legal Hunches Could be the Ultimate Litigation Tool*, CHI. DAILY L. BULL., Aug. 21, 1986, at 1, 13.

28. For applications of P/G% to other legal situations, *see* S. NAGEL, USING PERSONAL COMPUTERS FOR DECISION-MAKING IN LAW PRACTICE (1985); Nagel, *Microcomputers, Risk Analysis, and Litigation Strategy*, 19 AKRON L. REV. 35 (1985); Nagel, *Optimum Sequencing of Court Cases to Reduce Delay*, 37 ALA. L. REV. 583 (1986); Nagel, *Sequencing and Allocating Attorney Time to Cases*, 13 PEPPERDINE L. REV. 1021 (1986); Nagel, *Using Microcomputers and P/G% to Predict Cases*, 18 AKRON L. REV. 541 (1985).